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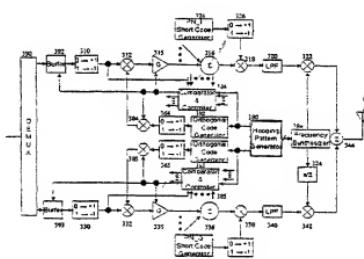
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(54) Title: MULTI-DIMENSIONAL ORTHOGONAL RESOURCE HOPPING MULTIPLEXING COMMUNICATIONS METHOD AND APPARATUS



(57) **Abstract:** The present invention is related to a statistical multiplexing method and apparatus using a multi-dimensional orthogonal resource hopping multiplexing method in a wired/wireless communication systems where a plurality of communication channels, which are synchronized through a single medium, coexist. The present invention, in order to implement a generalized statistical multiplexing communication system using a multi-dimensional orthogonal resource hopping multiplexing method, comprises a multi-dimensional hopping pattern generator which is located in the primary communication station, a data symbol modulator that modulates data symbols based on the corresponding orthogonal resource hopping pattern generated by said multi-dimensional hopping pattern generator, a collision detector and controller that detects whether a collision occurs or not between the multi-dimensional hopping patterns and compares the consistency of the data symbols toward the secondary communication stations between said collision interval, a transmission power controller that controls the transmission power of the remaining parts excluding the parts where the multi-dimensional hopping patterns collide and the transmission is stopped due to transmitting data symbol inconsistency and compensates for the loss in the average reception energy due to a transmission stoppage.